Alternative and Renewable Fuel and Vehicle Technology Program

Staff Workshop on Evaluation Criteria for Hydrogen Refueling Station Applications, Critical Milestones, and Data Collection

Charles Imbrecht Hearing Room

December 14, 2017

Agenda

Welcome	10:00 a.m.
Application Evaluation Criteria and New Ideas Team Qualifications; Coverage, Capacity and Market Viability; Safety Planning; Readiness, Operations and Maintenance; Budget; Financial Plan	10:10 a.m.
Lunch Break	12:00 p.m.

Agenda

Application Evaluation Criteria, continued Station Performance; Economic Social; Disadvantaged Communities; Innovation; Renewable Hydrogen Content; Sustainability; Environmental	1:00 p.m.
Critical Milestones	2:30 p.m.
Data Collection	2:45 p.m.
Renewable Hydrogen Reporting	3:00 p.m.
Application Submittals	3:15 p.m.
Public Discussion	3:30 p.m.
Adjourn	4:00 p.m.

Welcome

- Facilities and Logistics
- In case of emergency
- Diversity Survey
  - https://www.surveymonkey.com/r/99LQX27

Commitment to Diversity

The Energy Commission adopted a resolution on April 8, 2015, to firmly commit to:

- Increase participation of women, minority, disabled veteran and LGBT business enterprises in program funding opportunities.
- Increase outreach and participation by disadvantaged communities.
- Increase diversity in participation at Energy Commission proceedings.
- Increase diversity in employment and promotional opportunities.

Commitment to Diversity

Fairness – Increase funding accessibility to all Californians.

Inclusion – Small businesses make up a significant portion of the U.S. economy.

Job Creation – Projects can create jobs for residents of the under-served communities.

Diversity of Ideas – Great ideas occur in a variety of areas.

Diversity in Communities' Needs – Needs vary widely from one area to the next (air quality, socioeconomic, etc.).

Workshop Purpose

- To provide a forum to discuss the evaluation criteria for applications to hydrogen refueling station solicitations.
- To discuss critical milestones.
- To discuss data collection.

Reminder

The discussions during this workshop are for possible future solicitation concepts and no applications are being accepted at this time.

GFO 15-605 Evaluation Criteria

Phil Cazel

Points List (GFO-15-605)

Evaluation Criteria	Possible Points
Qualifications of the Applicant/Project Team	60
Coverage, Capacity, and Market Viability	100
Safety Planning	40
Project Readiness	40
Station Operation and Maintenance	40
Project Budget	25
Financial Plan	15
Hydrogen Refueling Station Performance	60
Economic and Social Benefits	20
Innovation	20
Renewable Hydrogen Content	30
Renewable Hydrogen from Direct Sources	30
Sustainability and Environmental Impacts	20
Total Points	500

Qualifications of Applicant/Project Team

60 total possible points

- Demonstrates ability to implement the proposed project.
- Has experience and expertise working with hydrogen refueling technology or other gaseous fuels.
- Demonstrates ability to adequately account for and control costs.

Qualifications of Applicant/Project Team

- Demonstrates project management experience including the ability to effectively manage and work with contractors and subcontractors.
- Demonstrates experience working with commercial real estate acquisition, rental, and leasing.

Qualifications of Applicant/Project Team

- Demonstrates experience in supply chain logistics, including recycling and reuse, on the part of at least one team member.

Qualifications of Applicant/Project Team

- Demonstrated acceptable past performance with California Energy Commission grants or contracts, if the Applicant worked on such projects, including:
  - Adherence to schedule and due dates for Critical Milestones.
  - Effective and timely issue resolution, especially when Critical Milestones were not met.
  - Honest, timely, and professional communication with Energy Commission staff.
  - Effective coordination with project partners, subcontractors, and other stakeholders.
  - Timely and accurate invoicing.

Coverage, Capacity, and Market Viability

100 total possible points

- The proposed station location results in a high CHIT Station Coverage Value.
- The proposed station capacity results in a high CHIT Station Capacity Value.
- The proposed station provides refueling service that meets the hydrogen refueling needs for the projected vehicle demand (light duty vehicle traffic count and patterns).

Coverage, Capacity, and Market Viability

- The proposed station provides redundancy and back-up in a location needing fueling capacity.
- The proposed station provides refueling service for local fleets, as practicable.

Coverage, Capacity, and Market Viability

- The proposed station provides refueling service that is available during peak fueling periods for light duty vehicles passing the station (daily, weekly, or during other time periods) and the peak fueling periods for the location do not conflict with timeframes allowed by local ordinances.
- The proposed station meets the needs of a higher average number of fills over a 1- and 12-hour period.

Coverage, Capacity, and Market Viability

- The proposed station provides refueling service for vehicles tested and deployed at automotive parts assembly, testing, distribution, and demonstration facilities.

Coverage, Capacity, and Market Viability

- The proposed station's refueling service complements the coverage and capacity of the network of existing and planned hydrogen refueling stations in Table 1 and any other new stations proposed for funding by the Applicant under this solicitation.

Safety Planning
40 total possible points

- The Applicant's Safety Plan is adequate and comprehensive.
- The Applicant commits to providing current, timely, and easily accessible information about the station to First Responders in the event of an emergency, including a publicly available station maintenance plan.

Safety Planning

- The Applicant provides a realistic, timely, and comprehensive plan to assure safety training for the station's initial operation and safety retraining over time for all station operators.

The Safety Plan

- Includes effective organizational safety policies and procedures.
- Includes hydrogen and fuel cell experience.
- Identifies operational safety vulnerabilities and appropriate risk reduction plans.
- Includes information about equipment and mechanical integrity of the planned station.
- Includes process flow diagrams or piping and instrumentation diagrams.

The Safety Plan

- Includes safety and alarm systems.
- Includes an effective materials selection process to ensure hydrogen compatibility.
- Includes appropriate and timely maintenance, testing, calibration and inspection procedures.

Project Readiness
40 total possible points

- Site control (including the station lease or access rights to install equipment and storage tanks) is secured.
- Project is consistent with existing zoning requirements.
- The proposed project schedule is realistic and aggressive and the station is expected to be operational expeditiously.

Project Readiness

- Applicant has secured or initiated actions to secure required permits.
- Station has progressed in obtaining compliance under the California Environmental Quality Act (CEQA) per the requirements of this solicitation.

Project Readiness

- Site plan shows setback requirements, which identify the mandatory separation distances of the station's components,
  - minimum distance in feet from a hydrogen system of indicated capacity to any specified exposure source pursuant to local, State, and Federal codes and standards (e.g., NFPA 2).

Project Readiness

- Station component certification has been received from third-party testers.
- The proposed station is consistent with regional alternative vehicle readiness plans.
- Community outreach, including Fire Marshals, is planned and appropriate to ensure successful and timely station construction.

Project Readiness

- The proposed station design has appropriately considered traffic approach, entrance, exit, and circulation within the station.
- The application addresses the time and cost required for utility connections.

Station Operation and Maintenance

40 total possible points

- Station operator and station owner commits to operate and maintain the station beyond the term of the funding agreement.
- The maintenance plan is viable, appropriate, and comprehensive.

Station Operation and Maintenance

- The operation and maintenance procedures are adequate to maximize station “up-time” and meet customer fill requests, including procedures to fix malfunctioning equipment and back-up fueling plans in the event of station outage.

Station Operation and Maintenance

- The backup plan to provide hydrogen to customers in case the refueling station goes offline or the hydrogen supply is depleted is adequate and reasonable.
- The plan and commitment to coordinate planned maintenance with adjacent stations on the network are adequate and reasonable.

Station Operation and Maintenance

- Station reliability procedures will be implemented, monitored, and adjusted to keep the station operational and ready to provide fuel.

Station Operation and Maintenance

- Testing procedures are adequate to maintain hydrogen quality according to the Minimum Technical Requirements.
- Operation and maintenance procedures that adhere to the Applicant's Hydrogen Safety Plan.

Station Operation and Maintenance

- Posted signage at the hydrogen refueling station is appropriate and adequate to advise and educate the public on hydrogen refueling, provide instructions to the station user, and acknowledge the public funding received for the station.
- The Applicant has an effective and credible plan, and submits that plan with the application, for continuous customer service improvement.

Station Operation and Maintenance

- Data collection procedures are adequate to collect and report detailed and quantifiable data through the NREL Data Collection Tool.
- The monitoring plan for compliance with the standards identified in the Minimum Technical Requirements is adequate and continues throughout the operation of the station.

Station Operation and Maintenance

- The Applicant has an effective and credible plan for becoming an open retail hydrogen refueling station for light duty vehicles no more than 180 days after becoming an operational hydrogen refueling station and to remain open for retail sales for a minimum of five years after becoming open retail.

Project Budget
25 total possible points

- The budget represents a realistic understanding of planned costs to ensure successful project completion.
- The proposed project is likely to result in a high benefit-cost score (GHG reductions per public dollar provided to the project).

Project Budget

- The budget and costs are reasonable, justified and suitable for the proposed project.
- The minimum Match Share requirements are exceeded.
- The project has co-product off-take agreements, which supports ongoing viability of the proposed station.

Financial Plan

15 total possible points

- Applicant demonstrates economic viability of the proposed project.
- Applicant demonstrates the viability of the Applicant's firm as a going concern over the duration of the proposed project and beyond.

Financial Plan

- Applicant demonstrates the ability to effectively manage and mitigate risks associated with construction, cost overruns, operation, maintenance, technology, regulations, and economic inflation.

Lunch Break

Hydrogen Refueling Station Performance

60 total possible points

- The proposed station exceeds the minimum daily fueling capacity required under this solicitation.
- The proposed station provides daily fueling capacity that is scalable and can be increased by at least 25% per day without additional State of California funding.

Hydrogen Refueling Station Performance

- The proposed station exceeds the minimum peak fueling capacity required under this solicitation.
- The proposed station demonstrates maximum station reliability and refueling availability.
- The proposed station demonstrates maximum reliability in the Point of Sale system.

Hydrogen Refueling Station Performance

- The proposed station has the ability to fill multiple vehicles with hydrogen simultaneously.
- The proposed station provides adequate lighting to assist station users.
- The proposed station maximizes the hours of operation while addressing local requirements.

Economic and Social Benefits
20 total possible points

- The proposed project is likely to expand opportunities for California-based businesses.
- The proposed project is likely to create jobs.
- The proposed project is likely to result in economic benefits, including in disadvantaged communities within California.

Innovation

20 total possible points

- Has innovations that improve the consumer refueling experience, increase station cost-effectiveness, increase the effectiveness of the hydrogen refueling network, or others, which may include:
  - Unique or advanced features of the project or hydrogen refueling station technology.
  - Equipment that can be relocated and reused as demand increases.

Innovation

  - Space management of the station.
  - Efficiencies in supply chain management.
- Plans to participate in U.S. Department of Energy (DOE), national, state, and local research and development projects (i.e., pre-approved studies on in-line contaminant detectors, refueling protocols, and safety).

Renewable Hydrogen Content
30 total possible points

- The station (or average of hydrogen dispensed across a collection of one grant recipient's stations funded under this solicitation) exceeds the required 33% renewable hydrogen content by use of either renewable energy certificates (RECs) or renewable hydrogen from direct sources.

Renewable Hydrogen From Direct Sources

30 total possible points

- The station (or collection of one grant recipient's stations funded under this solicitation) has any direct renewable hydrogen sources, meeting or exceeding the 33% renewable requirement, from a project initiated specifically for the proposed station.

Renewable Hydrogen From Direct Sources

- The station (or collection of one grant recipient's stations funded under this solicitation) uses direct renewable hydrogen resources, meeting or exceeding the 33% renewable requirement, from within California.

Sustainability and Environmental
20 total possible points

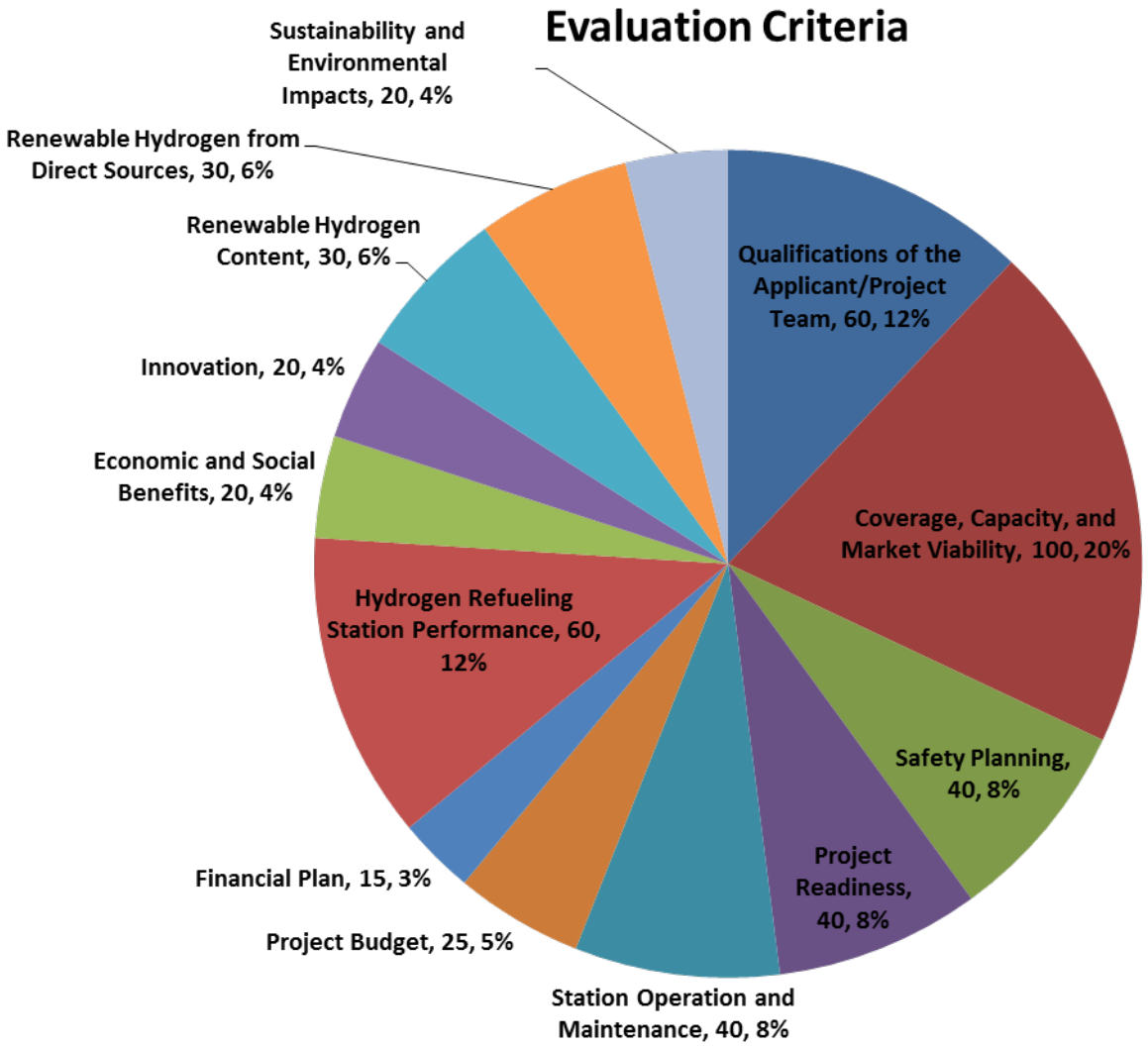
- Uses recycled materials and repurposed equipment and materials.
- Minimizes water use through recycling, reclamation, or other means.
- Maximizes energy efficiency for system power.
- Preserves and enhances the use of natural resources in the State.

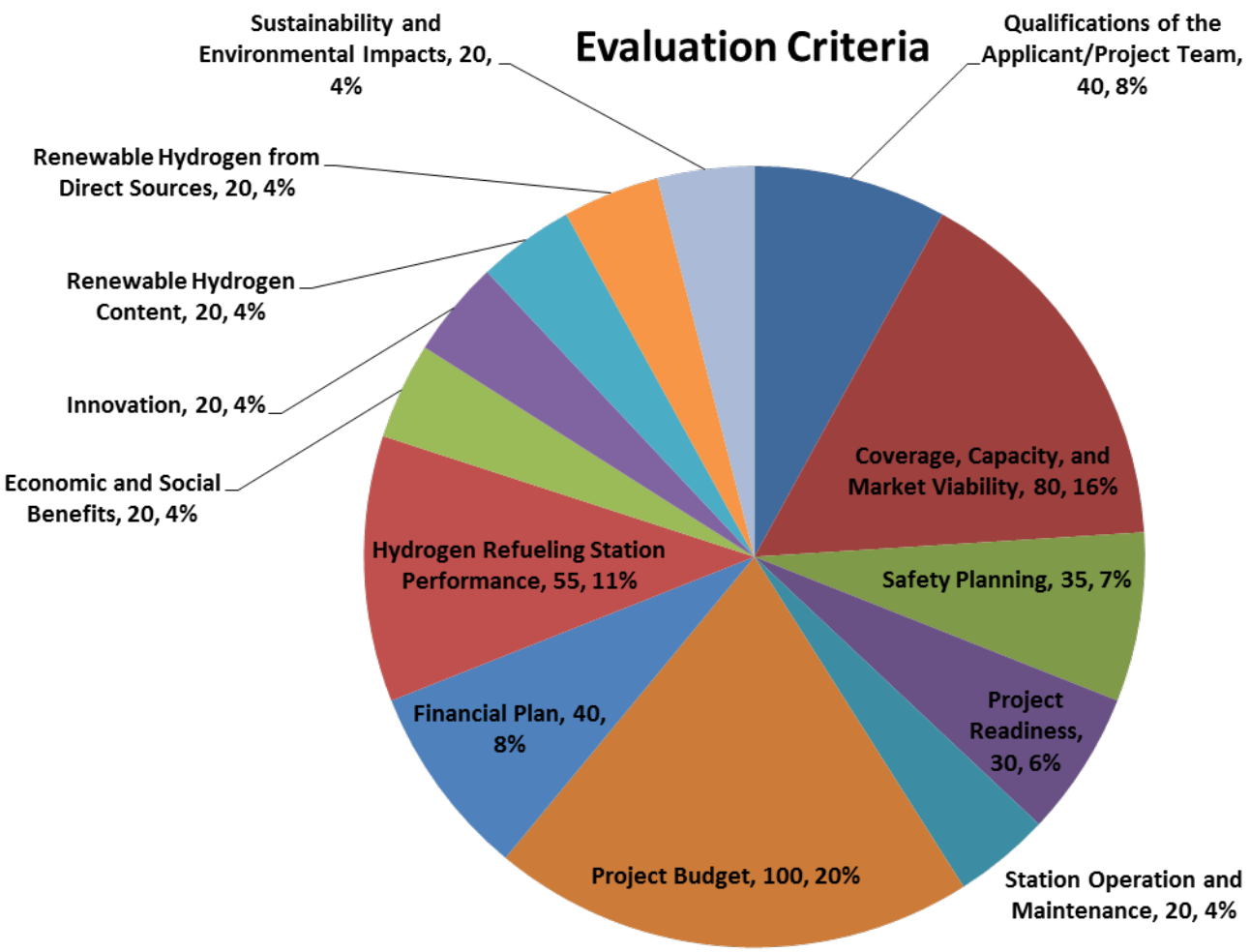
Sustainability and Environmental

- Promotes superior environmental performance of alternative and renewable fuels.
- Uses alternative fuels for hydrogen delivery trucks.
- Uses curtailed electricity from California's electricity grid and provides a method to document this use.

Minimum of 70% under these criteria to be eligible for funding

- Qualifications of the Applicant/Project Team
- Coverage, Capacity, and Market Viability
- Safety Planning
- Project Readiness
- Hydrogen Refueling Station Performance


Evaluation Criteria
Sustainability and Environmental Impacts, 20, 4%
Renewable Hydrogen from Direct Sources, 30, 6%
Renewable Hydrogen Content, 30, 6%
Innovation, 20, 4%
Economic and Social Benefits, 20, 4%
Hydrogen Refueling Station Performance, 60, 12%
Financial Plan, 15, 3%
Project Budget, 25, 5%
Station Operation and Maintenance, 40, 8%
Project Readiness, 40, 8%
Safety Planning, 40, 8%
Coverage, Capacity, and Market Viability, 100, 20%
Qualifications of the Applicant/Project Team, 60, 12%


Evaluation Criteria
Sustainability and Environmental Impacts, 20, 4%
Qualifications of the Applicant/Project Team, 40, 8%
Renewable Hydrogen from Direct Sources, 20, 4%
Renewable Hydrogen Content, 20, 4%
Innovation, 20, 4%
Economic and Social Benefits, 20, 4%
Coverage, Capacity, and Market Viability, 80, 16%
Safety Planning, 35, 7%
Project Readiness, 30, 6%
Station Operation and Maintenance, 20, 4%
Project Budget, 100, 20%
Financial Plan, 40, 8%
Hydrogen Refueling Station Performance, 55, 11%

Critical Milestones

Miki Crowell

Critical Milestone 1

- The Recipient must have held an in-person pre-application meeting, for permits to build and operate each proposed hydrogen refueling station, with the authority that has jurisdiction over the project and entitlement process.
- The meeting should include discussion of zoning requirements and aesthetics of the proposed refueling station. The Recipient must provide to the Energy Commission proof of having met this Critical Milestone by submitting notes from a pre-application meeting with a date, time, location, and list of meeting participants.

Critical Milestone 2

- The Recipient must have control and possession of the site at which the hydrogen refueling station is to be constructed. The Recipient must provide to the Energy Commission proof of having met this Critical Milestone by submitting adequate documentation of site control.

Data Collection and Reporting

Mark Johnson

Data Collection and Reporting

- Recipients awarded Cap-X funds and O&M funds under GFO-15-605 are required to collect and submit station operation, maintenance, and performance data to the Energy Commission using NREL Data Collection Tool.
- The specific data collection requirements are contained in the agreement's Scope of Work.

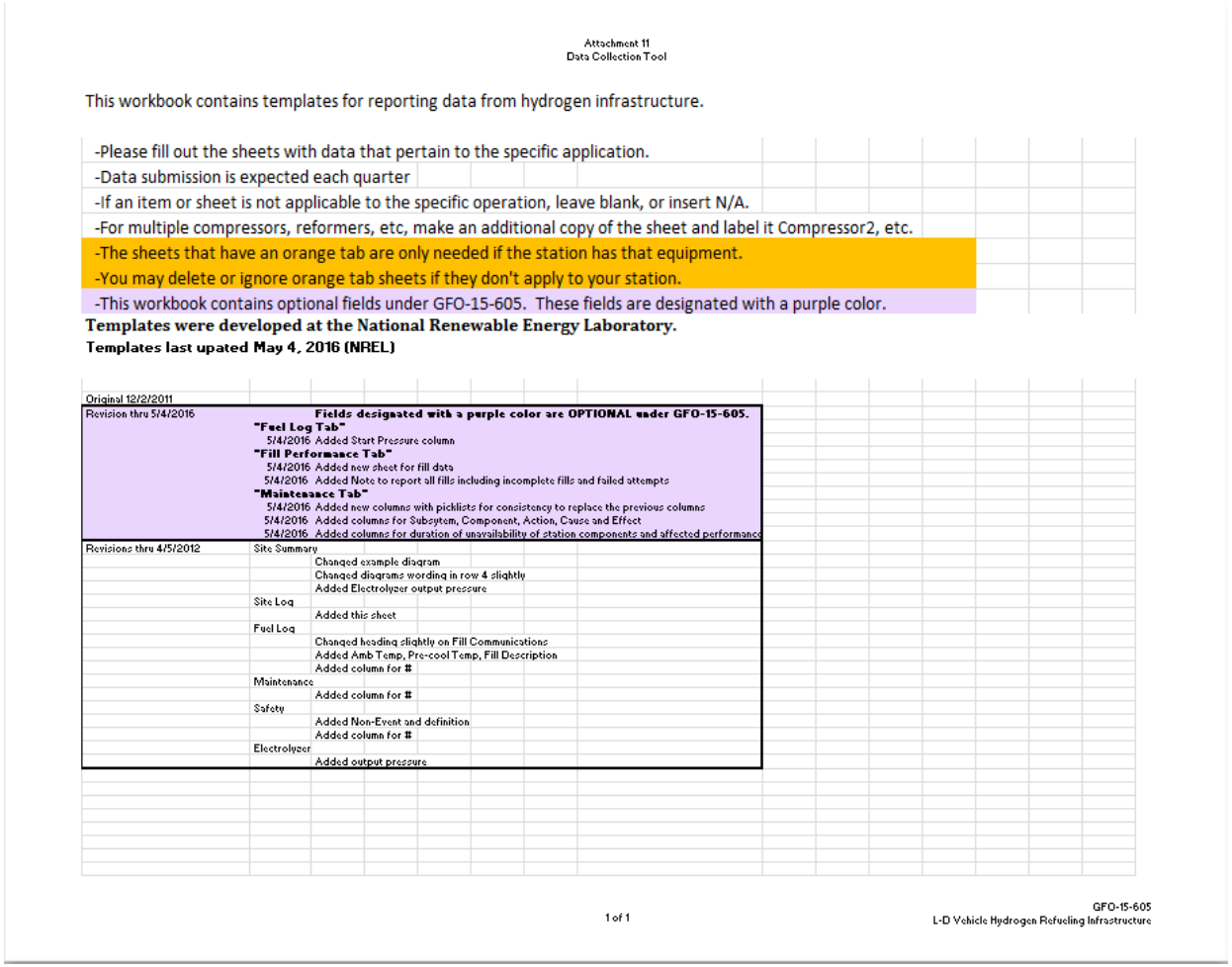
Data Collection and Reporting

- Recipients that only received CAP-X are required to submit:
  - A completed NREL Data Collection Tool with each invoice for one year, once the station becomes operational
  - A Final Report that includes 12 months of data collection.

Data Collection and Reporting

- Stations receiving an O&M Support Grant shall collect and report data for 3 years after the station becomes operational.

California Energy Commission



Attachment 11
Data Collection Tool

This workbook contains templates for reporting data from hydrogen infrastructure.

-Please fill out the sheets with data that pertain to the specific application.
-Data submission is expected each quarter
-If an item or sheet is not applicable to the specific operation, leave blank, or insert N/A.
-For multiple compressors, reformers, etc, make an additional copy of the sheet and label it Compressor2, etc.
-The sheets that have an orange tab are only needed if the station has that equipment.
-You may delete or ignore orange tab sheets if they don't apply to your station.
-This workbook contains optional fields under GFO-15-605. These fields are designated with a purple color.

Templates were developed at the National Renewable Energy Laboratory.
Templates last upated May 4, 2016 (NREL)

Original 12/2/2011

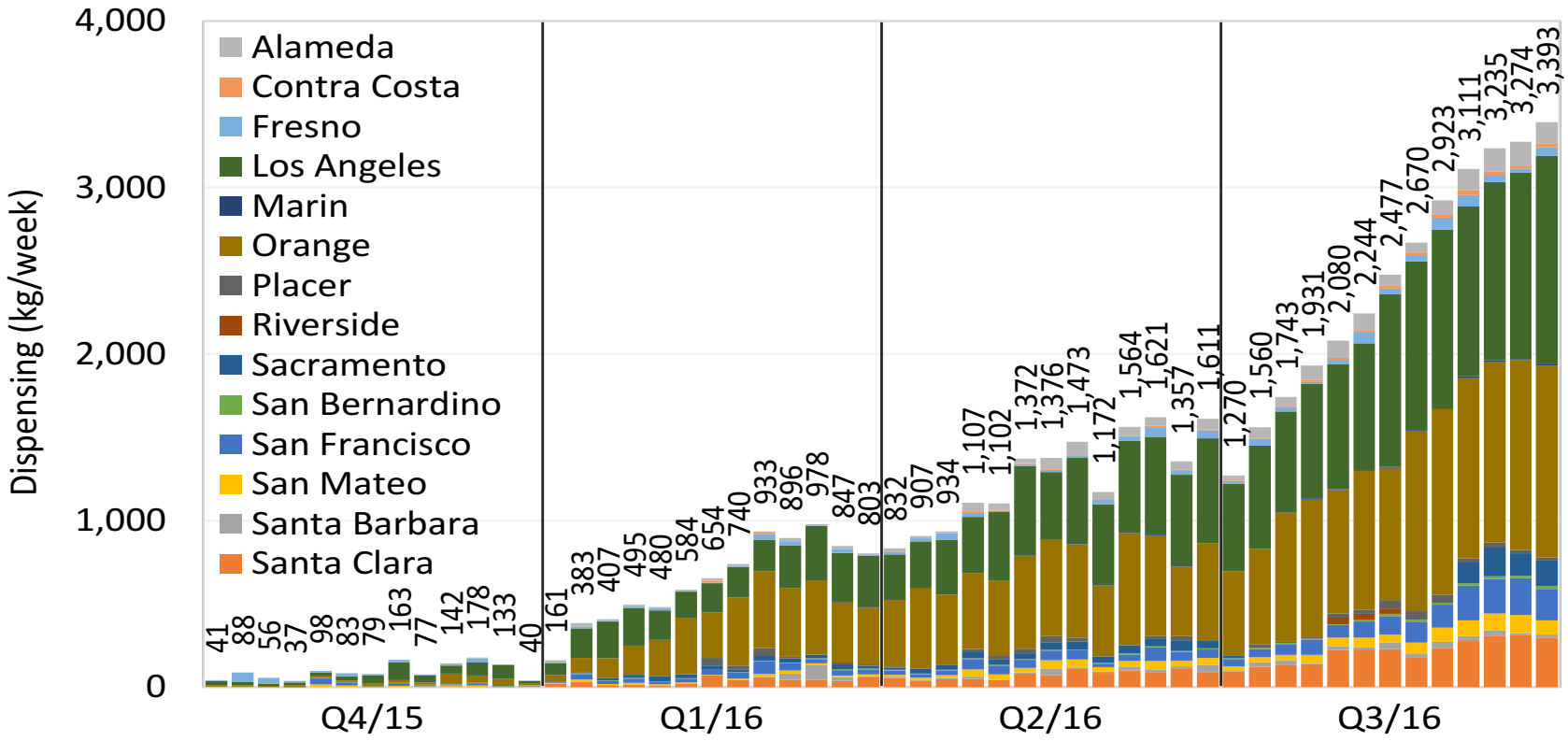
Revision thru 5/4/2016	**Fields designated with a purple color are OPTIONAL under GFO-15-605.**	
	"Fuel Log Tab"	
	5/4/2016	Added Start Pressure column
	"Fill Performance Tab"	
	5/4/2016	Added new sheet for fill data
	5/4/2016	Added Note to report all fills including incomplete fills and failed attempts
	"Maintenance Tab"	
	5/4/2016	Added new columns with picklists for consistency to replace the previous columns
	5/4/2016	Added columns for Subsytem, Component, Action, Cause and Effect
	5/4/2016	Added columns for duration of unavailability of station components and affected performance
Revisions thru 4/5/2012	Site Summary	
		Changed example diagram
		Changed diagrams wording in row 4 slightly
		Added Electrolyzer output pressure
	Site Log	
		Added this sheet
	Fuel Log	
		Changed heading slightly on Fill Communications
		Added Amb Temp, Pre-cool Temp, Fill Description
		Added column for #
	Maintenance	
		Added column for #
	Safety	
		Added Non-Event and definition
		Added column for #
	Electrolyzer	
		Added output pressure

1 of 1

GFO-15-605
L-D Vehicle Hydrogen Refueling Infrastructure

http://www.energy.ca.gov/contracts/GFO-15-605/Attachment-11_NREL_Data_Collection_Tool_2016-06-02.xlsx

Weekly Hydrogen dispensing by County



Data Collection and Reporting

- Renewable Hydrogen Dispensed
  - Required every 6 months
  - http://www.energy.ca.gov/contracts/GFO-15-605/Attachment-12_Report_of_Renewable_Hydrogen_Dispensed.docx

Pre-Application Abstract and Application Format (New Concept)

Jean Baronas

http://www.energy.ca.gov/contracts/GFO-15-606/01_Attach-01A_Pre-Application_Abstract_Form.doc

Additional Information

Workshops, Notices, and Documents for Hydrogen Refueling Station Workshops

http://www.energy.ca.gov/altfuels/2017-HYD-02/documents/

Alternative Fuels Email listserv

http://energy.ca.gov/altfuels/2017-HYD-02/

Public Discussion

Esther Odufuwa

Contact Information

Please send questions and comments by December 22, 2017 at 5 P.M. to:

California Energy Commission
Docket Office, MS-4
Re: Docket No. 17-HYD-02
1516 Ninth Street
Sacramento, CA 95814
E-mail: DOCKET@energy.ca.gov